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(51) [International Patent Classification, 6th Edition]

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Abstract

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(57) [Abstract]

[Problems to be Solved by the Invention]

It is superior in flame resistance, mechanical*thermal property, it offers polycarbonate resin composition which at sametime is superior in external appearance.

[Means to Solve the Problems]

polycarbonate resin composition* where it consists of polycarbonate resin 1~99 weight% and polycarbonate-organopolysiloxane copolymer 99~1 weight% and content of silicon combines polytetrafluoroethylene 0.2~2 parts by weight which possesses phosphate ester-based compound 0.1~5 parts by weight and the fibril-forming ability and vis-a-vis polycarbonate resin 100 parts by weight under 0.5 weight%, becomes

It is superior in flame resistance, mechanical*thermal property, it offers polycarbonate resin composition which at sametime is superior in external appearance.

[Means to Solve the Problems]

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Claims

[Claim(s)]

[Claim 1]

polycarbonate resin composition* where it consists of (A) polycarbonate resin 1~99 weight% and (B) polycarbonate-organopolysiloxane copolymer 99~1 weight% and the content of silicon combines (C) phosphate ester-based compound 0.1~5 parts by weight and polytetrafluoroethylene 0.2~2 parts by weight which possesses (D) fibril-forming ability vis-a-vis polycarbonate resin 100 parts by weight under 0.5 weight%, becomes

[Claim(s)]

[Claim 1]

polycarbonate resin composition* where it consists of (A) polycarbonate resin 1~99 weight% and (B) polycarbonate-organopolysiloxane copolymer 99~1 weight% and the content of silicon combines (C) phosphate ester-based compound 0.1~5 parts by weight and polytetrafluoroethylene 0.2~2 parts by weight which possesses (D) fibril-forming ability vis-a-vis polycarbonate resin 100 parts by weight under 0.5 weight%, becomes

[Claim 2]

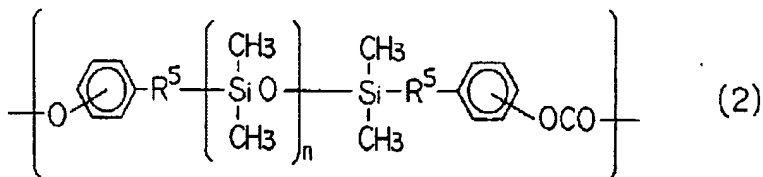
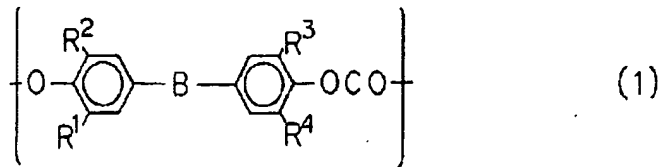
(B) polycarbonate-organopolysiloxane copolymer, is polycarbonate-organopolysiloxane copolymer which possesses structural unit which is displayed with below-mentioned Formula (1) and structural unit which is displayed with below-mentioned Formula (2) and polycarbonate resin composition* which is stated in Claim 1 which is made feature

[Claim 2]

(B) polycarbonate-organopolysiloxane copolymer, is polycarbonate-organopolysiloxane copolymer which possesses structural unit which is displayed with below-mentioned Formula (1) and structural unit which is displayed with below-mentioned Formula (2) and polycarbonate resin composition* which is stated in Claim 1 which is made feature

[Chemical Formula 1]

[Chemical Formula 1]



(1) B is a straight chain, branched chain of carbon number 1~10 or alkylidene group, aryl substituted alkylene group, allylene group, -O-, -S-, -CO- of cyclic or -SO₂- it shows B, alkylene group of carbon number 2~6 which carbon atom where R¹, R², R³ and R⁴ respectively, show alkyl group of the hydrogen, halogen or carbon number 1~4, in Formula (2), as for R⁵, aromatic group and direct bond have done has connected with hydrogen atom of at least one showing, n shows integer 1 - 200.)

(In Formula (1), straight chain, branched chain of carbon number 1~10 or alkylidene group, aryl substituted alkylene group, allylene group, -O-, -S-, -CO- of cyclic or -SO₂- it shows B, alkylene group of carbon number 2~6 which carbon atom where R¹, R², R³ and R⁴ respectively, show alkyl group of the hydrogen, halogen or carbon number 1~4, in Formula (2), as for R⁵, aromatic group and direct bond have done has connected with hydrogen atom of at least one showing, n shows integer 1 - 200.)

3

[Claim 3]

100 parts by weight, relative parts by weight of phosphate ester-based compound and therelative d parts by weight of polytetrafluoroethylene which possesses fibril-forming ability, satisfy below-mentioned formula polycarbonate resin composition* which is stated in Claim 1 or 2 which is made feature

It confronts polycarbonate resin 100 parts by weight, relative c parts by weight of phosphate ester-based compound and therelative d parts by weight of polytetrafluoroethylene which possesses fibril-forming ability, satisfy below-mentioned formula polycarbonate resin composition* which is stated in Claim 1 or 2 which is made feature

0.

0.

5 ≤ c ≤ d × 2

5 ≤ c ≤ d × 2

Specification

[Description of the Invention]

[0001]

0001

[Technological Field of Invention]

this invention regards polycarbonate resin composition, furthermore details regard polycarbonate resin composition of flame resistance which is superior in mechanical*thermal

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property and external appearance.

[0002]

[Prior Art]

polycarbonate resin has had mechanical*thermal property which is superior, is widely utilized in industrially including automobile field, OAEquipment field, electrical and electronics fields.

On one hand, multiple flame retardant development and investigation is done in order recently, OAEquipment, household appliance product or other application demand of flame retardation of synthetic resin material which is used for center, isstrong, to answer to these demands.

Usually, halogen compound etc is combined mainly in flame retardation of polycarbonate resin, furthermore antimony trioxide etc is jointly used is many as the flame retardant auxiliary agent.

But, when halogen compound is combined to synthetic resin as flame retardant, there is apossibility of causing environmental contamination at time of fire generation or timeof incineration.

In addition, polycarbonate resin original mechanical property which is superior is impaired,color change when forming, furthermore, property decrease when youuse for long period with high temperature and coloration or other problem has possessed.

Because of this quantity reduction of halogen compound which is used for flame resistance resin isdesired.

[0003]

composition which combines aromatic oligomer phosphate ester to aromatic polycarbonate resin or other thermoplastic resin is disclosed in Japan Unexamined Patent Publication Showa59-202240disclosure, but in order to obtain flame resistance which is superior, it isnecessary relatively to add aromatic oligomer phosphate ester to large amount, there is a problem that mechanical*thermal property is impaired.

In addition but, ABS type resin blending to polycarbonate resin, we to have done theattempt which it tries to improve fluidity etc, furthermore theattempt which combines phosphate ester-based compound for flame resistance improvement has done, asfor polycarbonate resin composition which combines ABS type resin and phosphate ester-based compound, heat resistance being insufficient, There is a problem that use with application where high heat resistance isrequired is restricted.

[0004]

By fact that polycarbonate-organopolysiloxane copolymer is

55-160052 61-215652 7-150028

[0005]

[Problems to be Solved by the Invention]

It is to offer polycarbonate resin composition where objective of this invention is superior in flame resistance, impact resistance, heat resistance, at same time is superior in molding external appearance and stiffness.

[0006]

[Means to Solve the Problems]

As for this invention, being something which can be made in order to solve above-mentioned problem, gist consists of (A) polycarbonate resin 1~99 weight% and the (B) polycarbonate-organopolysiloxane copolymer 99~1 weight% and content of silicon combines (C) phosphate ester-based compound 0.1~5 parts by weight and the polytetrafluoroethylene 0.2~2 parts by weight which possesses (D) fibril-forming ability vis-a-vis polycarbonate resin 100 parts by weight under 0.5 weight%, exists in polycarbonate resin composition which becomes.

[0007]

You explain in detail below, concerning this invention.

dihydric phenol and carbonate precursor reacting with solution method or melt method, it is something which is produced as (A) polycarbonate resin in this invention.

As dihydric phenol, 2 and 2-bis (4-hydroxyphenyl) propane [bisphenol A], you can list bis (4-hydroxyphenyl) methane, 1,1-bis (4-hydroxyphenyl) ethane, 2,2-bis (4-hydroxy-3,5-dimethylphenyl) propane, 2,2-bis (4-hydroxy-3-methylphenyl) propane, bis (4-hydroxyphenyl) sulfide, bis (4-hydroxyphenyl) sulfone, etc preferably bis (4-hydroxyphenyl) alkane system, you can list those which designate especially bisphenol A as main raw material.

As carbonate precursor, you can list carbonyl halide, carbonyl ester or haloformate, etc can list the di haloformate and mixture of those of preferably phosgene, diphenyl carbonate, bivalent phenol.

When polycarbonate resin is produced, mixing alone or 2

combined to polycarbonate resin, improvement method of the impact resistance, is disclosed in Japan Unexamined Patent Publication Showa55-160052 number and Japan Unexamined Patent Publication Showa61-215652 disclosure etc, in addition although, in polycarbonate resin, polycarbonate blend which possesses siloxane copolymer and the phosphorus-containing compound is disclosed in Japan Unexamined Patent Publication Hei 7-150028 disclosure, is superior in impact resistance, flame resistance, in the external appearance of molded article or point of stiffness it was not something which always it can be satisfied.

[0005]

[Problems to be Solved by the Invention]

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[0006]

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As carbonate precursor, you can list carbonyl halide, carbonyl ester or haloformate, etc can list the di haloformate and mixture of those of preferably phosgene, diphenyl carbonate, bivalent phenol.

When polycarbonate resin is produced, mixing alone or 2

kinds or more, it can also use theaforementioned dihydric phenol.

[0008]

When polycarbonate resin is produced, it is possible also to make branched polycarbonate, furthermore making use of branching agent they are 0.01, - 3 mole %, preferably 0.1~1.0 mole % vis-a-vis above-mentioned bivalent phenol compound as quantity of branching agent.

As branching agent, fluoroglycine, 2,6-dimethyl-2,4,6-tri (4-hydroxyphenyl) heptene-3, 4,6-dimethyl-2,4,6-tri (4-hydroxyphenyl) heptene-2, 1,3,5-tri (2-hydroxyphenyl) benzol, 1,1,1-tri (4-hydroxyphenyl) ethane, 2,6-bis (2-hydroxy-5-methylbenzyl) - 4-methyl phenol, the;al, the;al ' and;al "-tri (4-hydroxyphenyl) - polyhydroxy compound, and 3 and 3-bis where it is illustrated with 1, 3 and 5-tri isopropyl benzene etc (4-hydroxy aryl) oxy indole (=isatin bisphenol), 5-chloro isatin, 5,7-dichlor isatin, 5-bromo isatin etc are illustrated.

[0009]

molecular weight of polycarbonate resin, with viscosity average molecular weight which is converted, with 10,000-100,000, is point more preferably 1.50,000~60,000 of moldability and molded article property from the solution viscosity which was measured with temperature 25 deg C making use of methylene chloride as the solvent.

When polycarbonate resin which has these viscosity average molecular weight is produced, it is possible also to add catalyst etc in order to promote suitable molecular weight regulator, reaction.

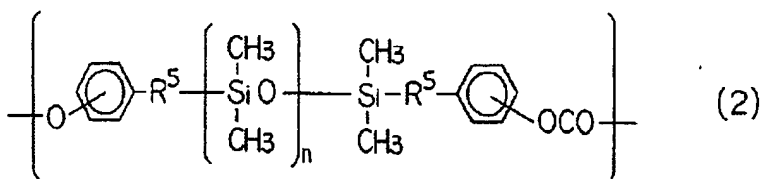
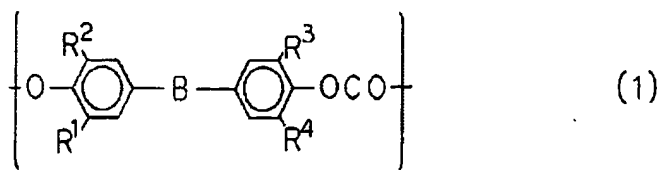
[0010]

It is a copolymer which possesses block which was induced from the block and diorgano siloxane which were induced from aromatic polycarbonate as (B) polycarbonate-organopolysiloxane copolymer in this invention.

As polycarbonate-organopolysiloxane copolymer, it adjusts block which was induced from diorgano siloxane which consists of structural unit which is displayed with polycarbonate block and the Formula (2) which consist of structural unit to which for example Japan Unexamined Patent Publication Showa50-29695 number and the Japan Unexamined Patent Publication Hei 3-292359 number, copolymer which is disclosed in Japan Unexamined Patent Publication Hei 4-202466 number each disclosure is listed, is displayed with preferably, Formula (1) in molecule and it can list block copolymer which it possesses.

[0011]

[Chemical Formula 2]



[0012]

In Formula (1), straight chain, branched chain of carbon number 1~10 or alkylidene group, aryl substituted alkylene group, aryl substituted alkylene group, allylene group, -O-, -S-, -CO- of cyclic or -SO₂- it shows B.

R¹, R², R³ and R⁴, respectively, show alkyl group of hydrogen, halogen or carbon number 1~4.

In Formula (2), R⁵ aromatic group and shows alkylene group of carbon number 2~6 which carbon atom which direct bond has been done has connected with the hydrogen atom of at least one, concretely, can list ethylene, propylene, butylene, pentylene, hexylene or other group.

repeat number of siloxane unit in Formula (2) is integer 1 - 200.

When n is under 1, improvement effect of impact resistance being insufficient, when it exceeds 200, fluidity is easy to decrease.

n is integer of preferably 5~100 from point of balance of the impact resistance and fluidity.

[0013]

It is a preferably 2~40 weight%, more preferably 3~25 weight% as ratio of structural unit which is displayed with Formula (2) in polycarbonate-organopolysiloxane copolymer.

As polycarbonate-organopolysiloxane copolymer, produces

with known method to be possible, you can list method which is stated in aforementioned Japanese Patent Publication as this method.

As manufacturing method of namely, polycarbonate-organopolysiloxane copolymer, other than thing which replaces to the silanized bisphenol which forms structural unit which is displayed portion of the dihydric phenol, with Formula (2) in manufacturing method of aforementioned (A) polycarbonate resin, you can list completely similar method.

silanized bisphenol -O- group and -OCO- group where it has connected to benzene nucleus of the both ends of Formula (2) changed in each case into hydroxy group, with the dihydric phenol, bond position of hydroxy group to whichever location of o-, m- or the p- may be -R⁵- vis-a-vis basis.

[0014]

structural unit which is displayed with Formula (2) is formed, phenol, preferably, vinyl phenol, isopropenyl phenol etc which possesses unsaturated carbon-carbon bond of olefinic as above-mentioned silanized bisphenol, in end of polysiloxane chain which possesses predetermined degree of polymerization (n), can be produced hydrosilation by reacting.

[0015]

Regarding to this invention, polycarbonate resin consists of (A) polycarbonate resin and (B) polycarbonate-polyorganosiloxane copolymer.

As ratio of (A) polycarbonate resin and (B) polycarbonate-polyorganosiloxane copolymer, (A) : (B) = 1: 99 - 99: at 1, preferably (A) : (B) = 30: 70 - 99: 1 is with weight ratio.

[0016]

content of silicon in polycarbonate resin is under 0.5 weight%.

0.5 When it is a weight% or more, because external appearance of molded article deteriorates, it is not desirable.

content of silicon is under preferably 0.01 weight% or more 0.5 weight%.

silicon amount, under 0.01 weight%, improvement effect of impact resistance is insufficient.

content of silicon, from point of balance of impact resistance and the molding external appearance, is more preferably, 0.05~0.4 weight%.

[0017]

You can list phosphate ester-based compound which is shown

[0014]

[0015]

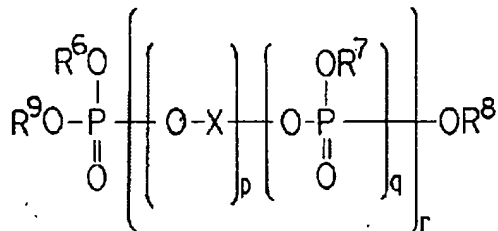
[0016]

[0017]

with Formula (3) as (C) phosphate ester-based compound in this invention, but it is not something which is limited in these.

[0018]

[Chemical Formula 3]



(3)

[0019]

In Formula (3), R⁶, R⁷, R⁸, R⁹ are organic group or hydrogen atom, but R⁶, R⁷, R⁸ and R⁹ are not hydrogen atom.

[0019]

In Formula (3), R⁶, R⁷, R⁸ and R⁹, respectively, display the hydrogen atom or organic group, but R⁶, R⁷, R⁸ and R⁹ case where in each case is a H is excluded.

As organic group, you can list optionally substitutable, alkyl group, cycloalkyl group and aryl group etc.

As organic group, you can list optionally substitutable, alkyl group, cycloalkyl group and aryl group etc.

When it is substituted, you can list for example alkyl group, alkoxy group, alkyl thio group, halogen, aryl group, aryloxy group, aryl thio group and halogenated aryl group etc as substituent, these substituent combined group (for example aryl alkoxy alkyl group etc) or you connect these substituent with oxygen atom, sulfur atom, nitrogen atom and etc are good even with combined group (for example aryl sulfonyl aryl group etc).

When it is substituted, you can list for example alkyl group, alkoxy group, alkyl thio group, halogen, aryl group, aryloxy group, aryl thio group and halogenated aryl group etc as substituent, these substituent combined group (for example aryl alkoxy alkyl group etc) or you connect these substituent with oxygen atom, sulfur atom, nitrogen atom and etc are good even with combined group (for example aryl sulfonyl aryl group etc).

[0020]

X is bivalent or greater organic group, means basis of the bivalent or greater which it is possible organic group of bivalent or greater excluding one or more of hydrogen atom which from above-mentioned organic group has been connected to carbon atom can list group which is induced from for example alkylene group, (substituted) phenylene group, polynuclear phenol for example bisphenols, relative position of separation atomic valency of 2 or more is the option.

[0020]

X displays organic group of bivalent or greater, means basis of the bivalent or greater which it is possible organic group of bivalent or greater excluding one or more of hydrogen atom which from above-mentioned organic group has been connected to carbon atom can list group which is induced from for example alkylene group, (substituted) phenylene group, polynuclear phenol for example bisphenols, relative position of separation atomic valency of 2 or more is the option.

Especially, you can list hydroquinone, resorcinol, diphenylol methane, diphenylol dimethyl methane, dihydroxy biphenyl, p,p'-dihydroxy diphenylsulfone, dihydroxy naphthalene etc as desirable ones.

Especially, you can list hydroquinone, resorcinol, diphenylol methane, diphenylol dimethyl methane, dihydroxy biphenyl, p,p'-dihydroxy diphenylsulfone, dihydroxy naphthalene etc as desirable ones.

As for p with 0 or 1, as for q with integer of the integer, preferably 1~30 of 1 or more, as for r integer of integer, preferably 1~10 of 0 or greater is displayed.

As for p with 0 or 1, as for q with integer of the integer, preferably 1~30 of 1 or more, as for r integer of integer, preferably 1~10 of 0 or greater is displayed.

However, when r 0 is, at least one inside R⁶, R⁷, R⁸ and R⁹ is organic group.

However, when r 0 is, at least one inside R⁶, R⁷, R⁸ and R⁹ is organic group.

□□□□□□□□

□0021□

(000000)0000000000(00000000)00000000
000(0000000)0000000000(2,3-00000000)
)-2,3-0000000000000000(2,3-00000000
0)0000(00000000)0000000000R5~R8
00000000000000000000000000000000
00(00)0000000000000000(00)00000000
0000000000 A 00000000000000000000
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0000000000

2

□0022□

[illegible]

0.1




0.5~4

□0023□

000000(D)000000000000000000000000
00000ASTM 00000 3 000000000000
000000000000000000000000000000
000

000
 0000000000000000000000(0)00000000 **6J** 000000
 0 **30J** 00000000000000000000(0)000000000000
 0000000000000000000000

0024


 (A) 
 (B) 
 100 nm

R⁸ and R⁹ displays organic group.

[0021]

As embodiment of phosphate ester-based compound, trimethyl phosphate, triethyl phosphate, tributyl phosphate, trioctyl phosphate, tributoxy ethyl phosphate, triphenyl phosphate, tricresyl phosphate, cresyl biphenyl phosphate, octyl biphenyl phosphate, diisopropyl phenyl phosphate, tris (chloroethyl) phosphate, tris (dichloropropyl) phosphate, tris (chloropropyl) phosphate, bis (2 and 3 -dibromopropyl) - 2and 3 -dichloropropyl phosphate, tris (2 and 3 -dibromopropyl) and alkoxy for example methoxy, ethoxy and bisphenol A bis phosphate, hydroquinone bis phosphate, resorcinol bis phosphate, tri oxy benzene triphosphate etc of place where it is a propoxy, or preferably (substituted) phenoxy for example phenoxy, methyl (substituted) phenoxy you can list bis (chloropropyl) mono octyl phosphate, R5~R8, it is a preferably triphenyl phosphate and various bis phosphate.

It is good using these with alone and, 2 kinds or more combining, it is good using.

[0022]

As ratio of phosphate ester-based compound, they are 0.1 - 5 parts by weight vis-a-vis (A) polycarbonate resin and polycarbonate resin 100 parts by weight which consists of (B) polycarbonate-organopolysiloxane copolymer.

0.1 Under parts by weight flame resistance being insufficient, when it exceeds 5 parts by weight, heat resistance is easy to decrease.

From point of balance of flame resistance and heat resistance, ratio of the phosphate ester-based compound is preferably 0.5~4 parts by weight.

[0023]

With ASTM standard classification it is done in type3 as polytetrafluoroethylene which possesses (D) fibril-forming ability in this invention, disperses in polymer easily, at same time connecting polymer, it is a compound which shows the tendency which makes fibrous material.

As polytetrafluoroethylene which possesses fibril-forming ability, we can be marketed from the for example Dupont-Mitsui Fluorochemicals Ltd., as Teflon6J or Teflon30J, or as Polyflon from Daikin Industries, Ltd., canprocure easily.

[0024]

They are 0.2 - 2 parts by weight vis-a-vis (A) polycarbonate resin and polycarbonate resin 100 parts by weight which consists of (B) polycarbonate-organopolysiloxane copolymer as ratio of polytetrafluoroethylene which possesses

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000300

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(1)0000

UL 94 00000000 1/16" 0000000000UL
 94 20mm 000000000000

(2)0000

UL 94 20mm 00000000005 00000010
 000000000000000000000000000000000000

000310

(3)00000000

ASTM D-648 0000000000000000000000
 1820kPa 0000 ASTM D-648 0000000000

0000000000 deg C 0000000000

(4)0000000000

ASTM D-256 0000000000000000000000
 ASTMD-256 1/8" 0000000000000000000000

0000000000kg/cm/cm 0000000000

(5)00

0000000000000000

00000000000000

000000000000000000000000000000000000

this invention.

Being easily molding and fabrication possible with extrusion molding, injection molding, compression molding or other method, in addition be able to apply to also blow molding, vacuum forming, gas injection molding etc, you can use polycarbonate resin composition of this invention, for ideal as material of electronic and electric appliances, OA equipment or other housing or sash application, various part where flame resistance which is superior is required.

[0030]

[Working Example(s)]

Below, this invention furthermore is explained in detail with Working Example, but if this invention does not exceed gist, it is not something which is limited in Working Example below.

Section in Working Example below displays parts by weight entirely.

property evaluation did test piece from resin composition pellet with protocol after and below forming.

(1) flammability

Following to UL standard 94, it executed 20 mm vertical combustion test of UL standard 94 making use of test piece of 1/16 inch thickness which it drew up.

(2) burning time

In 20 mm vertical combustion test of UL standard 94, 5 sample, namely total burning time of 10 times fire contact later, were indicated with unit of second.

[0031]

(3) heat distortion temperature

Following to ASTM standard D-648, it executed test of ASTM D-648 in 1820 kPa making use of test piece which it drew up.

It indicated heat distortion temperature, with unit of deg C.

(4) Izod impact strength

Following to ASTM standard D-256, it executed 1/8 "notched impact test of ASTM D-256 making use of impact test piece which it drew up.

It indicated Izod impact strength, with unit of kg*cm/cm.

(5) external appearance

molded article was observed with visual.

evaluation depended on following standard.

As for namely, * satisfactory, as for 0 satisfactory, as for X deficiency is shown very.

(6) ☐ ☐ ☐ ☐ ☐

ASTM D-790

ASTMD-790

□□□□□□kg/cm² □□□□□□□□

□0032□

☐ ☐

☐ ☐

(7) 〇〇〇〇〇〇-〇〇〇(〇〇 PC 〇〇〇〇〇〇) 〇〇〇〇〇〇〇〇〇〇
〇〇〇〇〇〇〇〇(〇) 〇〇〇〇〇〇〇〇〇〇 S-3000 〇〇〇〇〇〇〇〇〇〇
22,000

[illegible][illegible]

(10) 〇〇〇〇〇〇〇〇〇〇-1(〇〇〇〇〇〇〇〇〇-1 〇〇〇〇
〇〇)〇〇〇〇〇〇〇〇〇〇〇〇〇〇〇〇〇〇(〇)〇〇〇〇〇 PX-200〇

(11)□□□□□□□□-2(□□□□□□□□-2 □□□□
□□)□□□□□□□□□□□□□□□□(□)□□□□ TPP□

(12) PTFE F201L

(13)ABS (ABS) ()
ET-70

0033

1~5 1~5 100-2 40mmφ () 250 deg C

□□□□□□□□120 deg C □ 6 □□□□□□□□□□
(□□□□(□)□□□□ J-50EP)□□□□□□□□ 270

(6) flexural modulus

Following to ASTM standard D-790, it executed bending test of ASTMD-790 making use of flexural test piece which it drew up.

It indicated flexural modulus, with unit of kg/cm^2 .

[0032]

In each Working Example or Comparative Example below, raw material which is used is below-mentioned sort.

(7) polycarbonate resin (Below PC it states.), Mitsubishi Engineering Plastics Corp. (DB 69-164-9669) make, tradename IupilonS-3000, viscosity average molecular weight 22,000*

(8) polysiloxane-polycarbonate copolymer-1 (Below SiPC-1 it states.), polycarbonate-organopolysiloxane copolymer where quantity of poly dimethylsiloxane is 15 weight% of copolymer entirety (As for silicon content 5.25 weight%), viscosity average molecular weight 22,000*

(9) polysiloxane-polycarbonate copolymer-2 (Below SiPC-2 it states.), polycarbonate-organopolysiloxane copolymer where quantity of poly dimethylsiloxane is 5 weight% of copolymer entirety (As for silicon content 1.75 weight%), viscosity average molecular weight 22,000*

(10) phosphate ester-based compound-1 (Below phosphate ester-1 it states.), condensed phosphate ester, Daihachi Chemical Industry Co. Ltd. (DN 69-072-8662) make, tradenamePX-200*

(11) phosphate ester-based compound-2 (Below phosphate ester-2 it states.), triphenyl phosphate, Daihachi Chemical Industry Co. Ltd. (DN 69-072-8662) make, tradename TPP*

polytetrafluoroethylene (Below PTFE it states.)
polytetrafluoroethylene, Daikin Industries Ltd. which
possesses (12) fibril-forming ability (DB 69-054-0356) make,
tradename PolyflonF201L*

(13) ABS resin (Below ABS it states.), Mitsui Toatsu Chemicals Inc. (DB 69-053-6982) make, tradename SantacET-70*

[0033]

After mixing each component which is stated in { Working Example1~5 and Comparative Example1~5 } Table 1, Table 2, with the proportion of same listed, 40 mm diameter single screw extruder (Isuzu Kako Co., Ltd. make) were used, extrusion it did with cylinder temperature 250 deg C and pelletizing did.

With cylinder temperature 270 deg C, die temperature 80 deg C, designated test piece it formed pellet which it acquires, 6

deg C 80 deg C

hours after drying, making use of injection molding machine
(The Japan Steel Works Ltd. (DB 69-056-8472) Ltd. make,
tradename J-50EP) with 120 deg C.

-1 -2

composition and property evaluation result of pellet, were
shown in Table 1 and Table 2.

0034

[0034]

1

[Table 1]

表-1

	実施例-1	実施例-2	実施例-3	実施例-4	実施例-5
(A)PC	82	94	94	94	92
(B)SiPC-1		6	6	6	8
SiPC-2	18				
(C)リン酸エステル-1	2	2		0.5	2
リン酸エステル-2			2		
(D)PTFE	0.5	0.5	0.5	2	0.5
燃焼性	V-0	V-0	V-0	V-0	V-0
燃焼時間	20	20	20	32	18
荷重たわみ温度	129	129	126	134	120
衝撃強度	74	74	70	78	72
外観	◎	◎	◎	◎	○
曲げ弾性率	23,000	23,000	23,000	22,400	22,600

0035

[0035]

2

[Table 2]

表-2

	比較例-1	比較例-2	比較例-3	比較例-4	比較例-5
(A)PC	100	100	94	94	67
(B)SiPC-1			6	6	33
(C)リン酸エステル-1	2	2	0.05	10	2.5
(D)PTFE	0.5	0.5	3	0.04	0.04
(E)ABS		3			
燃焼性	V-0	V-1	V-1	V-2	V-0
燃焼時間	28	52	56	37	28
荷重たわみ温度	130	129	135	108	118
衝撃強度	11	19	79	5	78
外観	◎	◎	×	◎	×
曲げ弾性率	23,900	23,600	21,900	26,300	19,100

0036

[0036]

[Effects of the Invention]

polycarbonate resin composition of this invention is superior
in flame resistance, impact resistance, stiffness, heat
resistance, at same time we are superior even in external
appearance, it is very useful as material of the electronic and
electric appliances, OAEquipment or other housing or sash

OA

application, various part.